

Not drowning, waving: The role of video in a renewed digital learning world

Meg Colasante
Deakin University

While online teaching involves a range of contemporary digital tools, there are strong indicators for an ongoing place for video in a new digital learning world. For example, the use of video during the pandemic, to urgently translate on-campus lectures to online content, refocused the argument on the role of video into the next phase of digital learning. Beyond a much-appreciated tool of convenience, what is video's pedagogical role in higher education? This article draws from the literature, including reviews, theory, and case examples, to offer a typology to represent the role of video in university teaching practices, including intentional reasons to employ video beyond passive viewing. The typology is offered in three role types: functional purpose, academic focus (or knowledge type), and pedagogical strategy. It is recommended that university educational practitioners (including teachers, developers, and designers) consider video as multidimensional, and consult all three role types when designing video-based learning experiences, to maintain the human design processes within the complexity of teaching and learning. The typology is dynamic and adaptable to further emerging contexts.

Implications for practice or policy:

- A typology of video roles demonstrates the multidimensional nature of video as a university teaching and learning tool, and thus signals the inherent complexity in digital teaching design practice.
- The video typology is offered for university educators to consult for intentional video-based learning design choices including to prompt considerations beyond passive student viewing.
- The typology is open for further adaptation into the future, for example, upon application to new cases.

Keywords: higher education, teaching practice, educational design, postdigital, video, typology

Digital video as a tool in university teaching practices

Societal access to online video, previously predicted for exponential growth (e.g., Cisco, 2020) and realised during the COVID-19 pandemic (e.g., Westcott et al., 2021), is reflected in the increasing use of video in education. Early in the pandemic, video was recognised as a key resource to support the continuation of teaching and learning (Reimers et al., 2020). Within the wide range of digital learning resources available in universities, video may not stand out as a “particularly advanced form ... of digitally enhanced learning”, nonetheless it remains one that “many students appear to find particularly useful and supportive” as they get on with their study (Henderson et al., 2017, p. 1576). As a teaching tool in higher education, online video is used to represent demonstrations, explanations, guest presentations, lectures, supplemental materials, or to provide administrative support, announcements, or audio visual feedback on assessments (Belt & Lowenthal, 2021; Kay, 2012; Tam, 2012). However, availability of online digital video has not routinely aligned with optimal teaching and learning practices (Bates & Sangra, 2011; Heilesen, 2010; Kay, 2012; Laurillard, 2012; Yousef et al., 2014). For example, Fyfield et al. (2019) wrote an editorial for this journal emphasising the proliferation of educational video, noting “that in practice much of the video produced in higher education remains simple lecture capture” (pp. 1-2). They indicate the need for further study “particularly in relation to active and immersive learning” (Fyfield et al., 2019, p. 3).

Universities are on the cusp of a new post-pandemic digital learning world. This juxtaposes with the previously signalled post digital societal era of a next or different stage in how technology is perceived and used. An awkward but useful term for considering contexts beyond the digital (Cramer, 2014; Fawns, 2019; Knox, 2019), a *postdigital* outlook has value in education by signalling that there is something more to discuss, that is, “looking less for a linguistic shift and more for a shift in educational culture, where

educators think ... about learning activities—critically questioning design and practice—whether they involve microchips or not” (Fawns, 2019, p. 142).

As we enter the next digital learning phase, a postdigital stance both challenges and prompts us to look deeper. It challenges us to look beyond the digital to explicitly focus on human elements; to question underpinning assumptions related to digital technologies, and build upon the work of those who have challenged assumptions about technology (e.g., Selwyn, 2007; 2017), to ask “how it relates to the human condition” (Knox, 2019, p. 259). Dawson (2019) places the postdigital as somewhat of an antidote to the digital, with the key responsibility to awaken a capacity for academics to think through tasks without allowing witless automation. Fawns (2019, p. 142) challenges educators to think critically about how tools are being used beyond their “qualities and possibilities” to ensure all teaching “take[s] account of digital and non-digital, material and social” in the entangled complexities of the wider culture. Video is one such digital tool which has roles beyond its digital affordances of student-controlled viewing to meet a range of human-initiated teaching goals within the complexity of university teaching.

Prevalence of passive receptive viewing in educational uses of digital video

Within their cultural practices, university teachers use videos to mediate learning for various educational purposes. In synthesising the literature, the purpose of information provision for passive viewing emerges prominently, as reflected in several published reviews of video use in tertiary education across the first decades of the twenty-first century. Five reviews, each which overtly focus on pedagogical aspects of university teaching and learning involving audio visual media, affirm a high prevalence of passive viewing. These reviews variously reflect this within teaching practices with video podcasts from 2002 to 2011 (Kay, 2012); podcasts of both video and audio recordings from 2004 to 2009 (Heilesen, 2010); video-based learning from 2003 to 2013 (Yousef et al., 2014) and also 2000 to 2012 (Giannakos, 2013); and video use in online and blended learning from 2010 to 2020 (Belt & Lowenthal, 2021). Most of these reviews identify prior gaps in the literature in relation to a pedagogical focus, for example, previous work not considering “teaching methodologies, design approaches, and the impact ... [toward] learning outcomes” (Yousef et al., 2014, pp. 112–113).

Extrapolated from these five reviews, video is more frequently leveraged for passive viewing experiences compared to active pedagogical interventions. In their respective reviews, the authors found low percentages of intentional pedagogical interaction opportunities. Yousef et al. (2014) found only 15% of their reviewed papers provided examples of teaching methodologies to support innovative, interactive, and student-centred video-based learning, while comparatively, most cases “still follow a top-down, controlled, teacher-centered, and centralized learning model” (p. 117). Similarly, Kay (2012) found basic video viewing accounted for over 90% of cases while more active measures comprised a minority (less than 8%), with a lack of clarity regarding “what factors in viewing video podcasts contribute to [learning]” (p. 825). Heilesen (2010) found that across the cases reviewed of using podcasts as tools in teaching practice, a minority indicated active use, although this relied more on technological affordances (e.g., portability, repeat viewing/listening, viewer control of playback) than intentional teaching strategies. The Giannakos (2013) review confirmed a failure to optimise the affordances of digital video, in that “considering the evolution of technology ... the shift in video-based learning research to more asynchronous and noninteractive systems is surprising” (p. E194). The most recent review, Belt and Lowenthal (2021), found a common use of video is to deliver lecture content, albeit noting increasing attempts to render videos interactive.

This range of review findings, that digital video in higher education is primarily used in traditional transmissive-style teaching practices, given that only a minority—that is 8 to 15% according to Kay (2012) and Yousef et al. (2014)—leverage it for other teaching purposes, aligns with earlier notions of introducing new tools into teaching but continuing a delivery style of teaching practice rather than student active learning (Bosco, 1984; Bruner, 1960; Cuban, 1986). Historically, equating transmission of knowledge with learning has been criticised by educational theorists, such as Dewey in the 1930s with his pedagogical arguments for active learning, and psychologists such as Vygotsky, Bruner, Piaget, and Papert, “all of whom argue for active engagement of the learner rather than the passive reception of given knowledge” (Laurillard, 2002, p. 13). Dewey (1933) expects students to be the performers, the creators, the thinkers, the doers if they are to learn effectively, and he positions teacher-centred approaches or over-prepared teaching materials as likely to rob students of learning opportunities. He advocates tasking students to

question the obvious, not to sit passively before objects but to actively do something specific in relation to the content to promote learning.

Beyond the review findings, published case examples in tertiary education frequently support the notion that videos tend to be employed for passive-receptive purposes. Case examples often detail basic learning interactions via technological controls (play, stop, rewind, and pause) (e.g., Amresh et al., 2013; Brooks et al., 2014), that is, video affordances that allow student control of pace and repeat viewing. A common use of video technology in higher education is to record and provide online access to structured lessons or content delivered by the teacher in the form of lecture capture or desktop recordings or webcasts, to allow students to repeat watch a lecture or to catch up on missed sessions due to life circumstances. Biggs and Tang (2011) describe how audio visual lecture recordings offer significant convenience for student flexibility of access, yet can simultaneously reinforce an information transmission model. This general concept was tested in a massive open online course (MOOC) on introductory psychology, which employed short lecture videos and iterative interactive activities with automated feedback (Koedinger et al., 2015). The study confirmed the benefits of doing rather than just viewing, with “results support[ing] the view that video lectures may add limited value for student learning and that providing more interactive activities will better enhance student learning outcomes” (Koedinger et al., 2015, p. 118).

The problem with passive viewing is that it tends to rely on a technological access approach if not intentionally purposed to meet teaching and learning goals for longer lasting educational outcomes. Access, granted, does have its benefits. Videos provide access to content or vicarious experiences, such as viewing illustrations and examples (Fahy, 2008), and bringing to the student otherwise hard-to-access or normally unobtainable contexts or experiences, for example, due to location (e.g., dangerous site or far away), size (e.g., microscopic), temporality (e.g., historical record), speed (e.g., slow motion) (Merkt et al., 2011; Petrosino & Koehler, 2007; Santos Espino et al., 2020), or overfamiliarity (e.g., enable viewers to notice detail) (Schwartz & Hartman, 2007). Video viewing also offers vicarious access to experts (Kay, 2012), just as earlier film and television could positively motivate a student when expanding their access to experts and models of expertise (Bruner, 1960). Control of viewing such content might help students to manage their cognitive load by choosing when to pause or move forward (Noetel et al., 2021).

Notwithstanding the benefits of student-controlled access to learning materials and vicarious experiences, there are still arguments to be made for intentionally rendering video interactive, that is, to look beyond the technological affordances toward the human factors related to educational purposes and goals. While acknowledging the prominence of learning through acquisition due to its usefulness in university education, Laurillard (2012) counters this by advocating for teaching designs that promote active learning processes rather than simply following the content. Fahy reminds us that “what the learner does with [the] media is more important than what the teacher does” (2008, p. 171, emphasis removed). Measures to modify an otherwise learning-through-acquisition approach include augmentation with dialogue, activities, and feedback (Laurillard, 2012), and augmenting video with other technological tools to afford various interaction opportunities (Laurillard, 2002; Lemke, 2007).

While “the advantages of various forms of video content in actual practice” have long been debated (Fahy, 2008, p. 175), coupled with criticism of marketisation-styled promises that digital technologies will deliver efficient and profitable university teaching at scale (Bayne, et al., 2020), the emphasis needs to shift from the digital media focus on to the human aspects of optimising video in teaching. Pea and Lindgren (2008) state: “[f]or decades, video has been broadcastcentric ... [w]e need a video infrastructure that is more interaction-centric—for people to communicate deeply, precisely, and cumulatively about the video content” (p.236). A quality aim, however, it positions technology as the solution to achieve a human-centred approach. There is a need to be less technology-led, as advocated by those seeking learning to remain the prime focus before technology (e.g., Sankey, 2019), albeit, neither technology nor pedagogy should be isolated as primordial given their entangled relationship with each other and with further aspects of pedagogical design and practice (Fawns, 2022). A less technological-led approach is further reinforced by Ramsden (2003), who, referring to online learning in higher education, laments the contradiction between potential for deep, interactive, flexible learning options versus “the vision of an easier and cheaper form of information transmission that looks up to date” (p. 151), which incites fantastic predictions for learning while not necessarily realising the educational benefits of technology. There has been:

[A] failure to articulate principles for designing teaching materials ... naïve technological determination, and the use of potentially interactive media in a passive way that takes no account of the individual learner. At worst, ICT is used to enable the passive reception of quantities of information ... In fact, it may reduce rather than enhance the quality of learning. (Ramsden, 2003, pp. 151-152)

Laurillard (2012) cautions that technology alone cannot create the conditions required for interactive learning, and that learning solely via technology, “uninformed by any understanding of the theory of teaching and learning ... plunge[s] us back into traditional approaches” (p. 4). To foster a deeper level of learning from video, teachers can guide their students to interact with content for purposeful, pedagogically designed learning opportunities.

Building a typology of intentional teacher roles for digital video

To determine a wide range of tertiary teacher roles for video, this section synthesises the literature, both as discussed in the previous section and calling upon further literature and case examples. This informs a typology which demonstrates a wide range of potential teacher design decisions for use of video inclusive of and beyond the role of passive delivery of information.

Two aforementioned papers which offer definitive categorisations for video use include Kay (2012) and Tam (2012). The Kay (2012) review categorises video types according to: (a) purpose (e.g., lecture-based, enhanced presentation slides, supplementary, worked examples); (b) pedagogical strategy (passive-receptive viewing, problem-solving assistance, student video creation); (c) academic focus (practical, conceptual); and (d) segmentation (entire video or broken into segments). Tam (2012) positions music and visual arts podcasts according to a simple taxonomy of purpose, under which videos are identified according to their role as informational (e.g., revision material); demonstration (a skill or procedural steps); or activity- or assignment-related (students required to engage and produce some form of output). According to Tam (2012), students nominate the demonstration videos as most effective, followed by activity- or assignment-related videos, with the informational videos—and presumably the least interactive—perceived as least effective.

A further reference providing definitive categorisations for video use is offered by Schwartz and Hartman (2007). Contrasted to the reviews above, these categories are not explicitly drawn from reviewing published cases in tertiary education contexts from the literature. Rather, the authors construct a framework for the use of designed video with reference to the broad education sector including childhood learning. Using concentric circles, the core comprises four classes of learning outcomes, including seeing, engaging, doing, and saying, followed by learning target (e.g., facts, skills), assessment (e.g., recall, performance), and genres (e.g., commentary, demonstration) (Schwartz & Hartman, 2007). The central or upper hierarchy of the learning outcomes classes are described in detail (Schwartz & Hartman, 2007), and might be summarised as: (a) seeing: noticing things that may be overlooked in routine observations or in own performance; (b) engaging: pique interest or curiosity for a topic, to give contextual relevance and meaning, as a trigger such as a case example to lead into a discussion, or to support problem-based learning (e.g., exposing the complexity of a problem); (c) doing: achieving an attitude (e.g., dramatic modelling of a behaviour for imitation) or a skill (e.g., demonstration or procedural knowledge, or decompose a skill to present sub-skills); and (d) saying: fact acquisition and inferencing (e.g., news bulletin, commentary, or an in-depth expository account).

For more nuanced, albeit arguably less definitive, video categorisation, the Yousef et al. (2014) review offers classifications of: effectiveness, teaching methods, design, and reflection. Looking at the examples within each category for clarification, effectiveness relates to what the video aims to achieve, including intended learning outcomes of knowledge/skill, interaction and communication between students, or to elevate student satisfaction levels. Teaching methods relate to student-centred learning (construction of knowledge, reflection, critical judgement); microteaching (teacher feedback on small group performance); collaborative learning including student discussion and problem-solving (interpretation, design, feedback on performance, data-coding, prompting); video summarisation (providing text summaries of recorded lecture content); and video assessment (students select and discuss responses to a video scenario). Design relates to augmenting video with either annotation tools (to index, discuss, reflect, and conclude content),

or broader authoring tools (e.g., discussion forum). Reflection relates to individual or collaborative reflection on one's own performance captured by video (Yousef et al., 2014).

Heilesen (2010) offers variously: lecture substitution with video for more quality learning time on campus (e.g., more hands-on laboratory time, or time for discussions or presentation of examples); recorded group discussions with teacher feedback (to explicitly encourage group participation); and student production of video (create a story in a language being learnt, revise a lecture for peers or for junior year students). Belt and Lowenthal (2021) offer delivery of lectures, fostering discussion, video assessment and/or feedback, and video check-ins (e.g., orientation, announcements).

Further works provide additional detail toward a typology of video use. Andrist et al. (2014) categorise sociology instructional videos first into a genre (e.g., testimony, pop fiction, propaganda) to then extrapolate an associated range of learning goals (e.g., exposure to viewpoints, cultivate attention to subtle messages, critical thinking, teach media literacy). Broad findings from Poquet et al. (2018) primarily focus on technical or presentation detail, yet beyond this they report that manipulation tasks related to learning outcomes tend to help students to apply effort, including "video annotation conditions, presence of self-reflection prompts or open-ended questions, identification of errors ... and graded vs. non-graded instructional conditions" (p. 155).

Three scoping papers synthesise various case examples to add to or confirm various video uses. In the first, Brame (2016) selects a range of literature to derive various strategies to promote active learning with video in higher education: interactive questions (e.g., integrate into videos, or post-viewing); student-controlled interactive features (e.g., chapter indexing, annotation); guiding questions (e.g., prompting questions to observe a behaviour from various angles); and integrating video into a larger activity or assessment (e.g., provide a problem that requires application of concepts from a video). Second, Colasante and Lang (2019) focus on case examples that demonstrate university teacher employment of convergent (or deeply focussed), granular discussion of video content. This approach involves teachers intentionally structuring/setting explicit analysis categories (or themes) to guide or stimulate students as novices to actively make meaning from video content. In the third scoping paper, Rasi and Poikela (2016) find that video can be used in various ways to contribute to a problem-based learning cycle. Early in the cycle, video can present a challenging issue to trigger the problem-solving process, which might be conventional or immersive (e.g., panoramic or 360° experiences). Mid-way in the problem-based learning cycle, video can comprise an informative resource, either from existing or student-generated video, to consolidate learning ready to apply toward solving the issue. Later in the cycle, video can be used for student collation, explanation, and presentation of their derived solution to the problem (Rasi & Poikela, 2016).

Added to this work is Laurillard's (2012) broader technology-enhanced *learning through* categories of acquisition, inquiry, discussion, practice, production, or collaboration. Learning through acquisition can foster a relatively passive learning approach, where it can be difficult to deduce full meaning via video without accompanying challenging activities before, during and/or after (Colasante & Douglas, 2016; Laurillard, 2012). For learning through inquiry (Laurillard, 2012), teachers prompt students to actively interrogate the media following a line of inquiry, using analytical and/or critical approaches. For learning through discussion, social construction of knowledge occurs in peer groups, tutorials, or online synchronous or asynchronous discussion; the teacher creates the questions or prompts for the students to then generate ideas (Laurillard, 2012). Learning through practice involves teacher-prepared activities that task students to apply their developing knowledge to achieve a task goal, for example, using worked examples or authentic/situated learning, practice, and feedback (Laurillard, 2012). Learning through production uses a mix of methods to result in student-generated text or artefacts (e.g., video). Learning through collaboration uses discussion and practice to iteratively lead to production, that is, to achieve an outcome of performance or video product, for example. A collaborative outcome goes beyond cooperative turn-taking to work toward a design, with emphasis on the peer-shared process and product (Laurillard, 2012).

Two reviews outside of the university sector, which review pedagogical uses for video in teacher professional development, might be generalised for application in higher education. Categories extrapolated from Major and Watson (2018) include: learning how to observe and interpret (e.g., noticing impact of teaching on students); learning subject matter (e.g., for pedagogical development); media competency (e.g., how to produce video for use in teaching); analysing practice; and reflection on practice. This includes self-reflection, which can be engaged with either individually or collectively (self or peer review), coupled with

feedback from a facilitator. Santagata et al. (2021) surface leveraging video with: annotation or animation technologies; frameworks or prompts to guide in-service teachers to notice key aspects of practice; video-anchored discussions to share reflections.

From the various work discussed above, a typology in three parts (types) has been created to synthesise the literature and represent various ways that university teachers use digital video to mediate student learning (Figures 1, 2, and 3). Three of Kay’s (2012) classifications are chosen and adapted to use as top-level categories, as these provide three key aspects for intentional consideration of video role types in university teaching. They form the three foundational or core types of functional purpose (i.e., arguably the most obvious and tangible purpose, e.g., to provide a type of information) (Figure 1); academic focus (or knowledge type) (Figure 2); and pedagogical strategy (Figure 3). Kay’s (2012) fourth category, segmentation, is subsumed under information functional purpose (Figure 1), and his subtypes of academic focus (practical and conceptual) are kept as knowledge types along with making declarative knowledge an explicit type of academic focus (while acknowledging its close relationship with conceptual knowledge) (Figure 2). Tam’s (2012) classifications of informational, demonstration, and activity- or assignment/assessment-related are chosen to form the three main types under functional purpose, albeit the latter renamed as *activity-related (learning or assessment)*, while Kay’s sub-categories for purpose (e.g., worked examples) are utilised principally in the third level (Figure 1). The remaining categories, informed by the various reviews, theorists, and case examples, have been synthesised and allocated within the various subtypes across the three main types.



Figure 1. Typology Part (Type) A: Functional purpose

Arguably, the typology as constructed through my lens of reviewing the literature is not exhaustive, and there is plausibly at least some inherent and potentially redundant duplication between role types. While the typology comprising three core types is open for adaptation, such as adding new sub-types or collapsing others (e.g., as improvements are noted when applied to further case examples), this paper recommends that the complexity is maintained. The complex human-mediated activity of teaching design should not be overly simplified for convenience, given the multidimensional factors of video-enriched learning (e.g., Fyfield et al., 2019; Yousef et al., 2014) and to recognise the entangled complexities of the material and the social, the physical and the human (e.g., Fawns, 2019). This paper argues that the three core types of functional purpose, academic focus, and pedagogical strategy, as adapted from Kay’s (2012) four classifications, are each maintained. That is, when designing learning involving video, all three types contribute and should be considered. Granted, some role types might be more inflexible than others in certain contexts (e.g., historical or cultural constraints in local and wider university teaching contexts, such as accreditation requirements, or timing issues).



Figure 2. Typology Part (Type) B: Academic focus (knowledge type)

To use the typology in practice, that is, when university practitioners make design decisions for using video for learning, consideration of role types might involve asking key questions such as: What is the immediate or functional purpose for the video? What is the academic focus for the video; what knowledge type is under focus for student learning? What pedagogical strategy is planned for involving video, and does this comprise multiple video role types?

The role of video for functional purpose can be used as a teaching prompt for baseline considerations, to consider the type of basic purpose intended to achieve with video. This might be a relatively straight forward proposition, that is, whether the purpose is to provide information to students (e.g., lecture content, support material), to offer a demonstration (e.g., a procedure, worked examples), or whether the video is more broadly activity or assessment related (e.g., providing core material via video for an activity). Beyond basic video purpose, university teachers might determine roles for video in relation to type of academic focus (what type of knowledge they want their students to build) and type of pedagogical strategy or strategies to employ (which can range from a single to multiple types in sequence or in combination).

The academic focus requires consideration on the role of video in building student knowledge. University teachers might aim to build their students’ declarative knowledge by using video to, for example, acquire factual detail or identify factual errors; to focus on practical or procedural knowledge to develop their students’ skills or competencies; or to build their students’ conceptual knowledge by using video to, for example, motivate students to expand their thinking to understand complex or transformative concepts. The role of video within a teachers’ pedagogical strategy may involve multiple role types. For example, passive viewing of video can have learning benefits through the teaching strategy of vicarious access to experiences otherwise routinely hard to access. However, this might be coupled with other pedagogical strategies such as analysis through collaborative and divergent discussion.

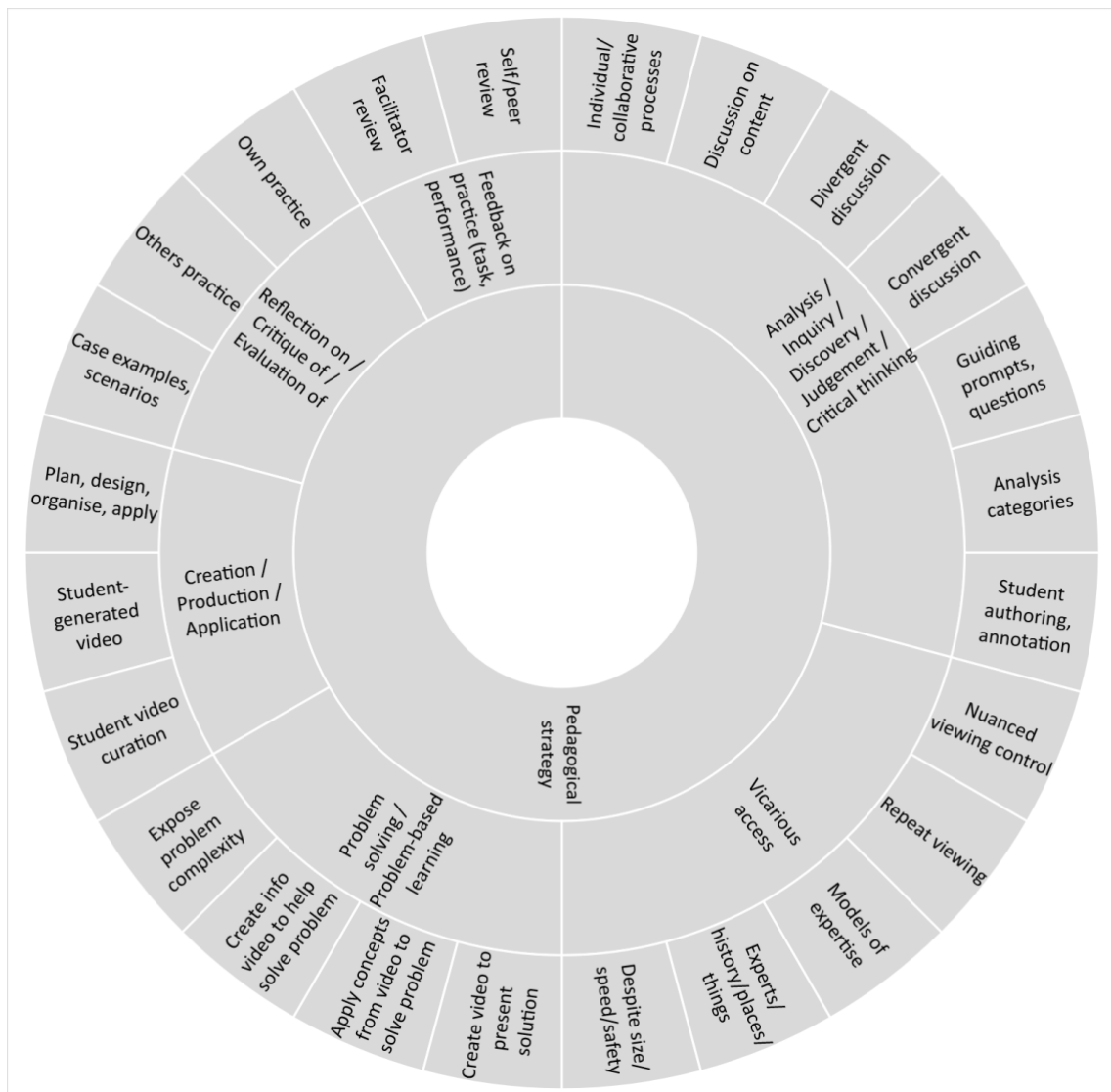


Figure 3. Typology Part (Type) C: Pedagogical strategy

Applying the typology to published case examples

This article advocates for university teachers to consider all three types of roles when employing the tool of video in their teaching practice, that is, functional purpose, academic focus, and pedagogical teaching strategy. The article also acknowledges that some teachers already intentionally or incidentally include all three aspects into their teaching design decisions. In this section, published case examples of university teacher practices that venture beyond passive viewing of video are summarised in relation to their inferred functional purpose, academic focus, and pedagogical strategy. Although it may not be possible to glean the full complexities of a case from its published representation, these case examples indicate alignment to all three core types of video roles.

In one case example, postgraduate sonography teachers use video to demonstrate different ultrasound techniques as applied to the ankle, as a teaching tool to prepare students to skilfully manipulate ultrasonic equipment (Thoirs & Coffee, 2012). Extrapolated from this case example, the teaching purpose is to demonstrate procedures, the academic focus is on students building practical/procedural knowledge to develop skills, and the pedagogical strategy is to foster vicarious and repeat access to expert demonstrations for reflection on others' practice, to prepare students to apply these skills into practice in supplementary learning opportunities (i.e., practical workshops then clinical settings). In this case example, the outcomes were deemed positive toward skill development albeit noted reluctance for video to replace all supervised learning experiences (Thoirs & Coffee, 2012).

In another postgraduate case, video was used in counselling psychology as part of a range of measures to promote awareness in multiculturalism, social justice, and advocacy skills (Motulsky et al., 2014). Amongst other activities, the students were to watch and reflect on a video featuring a prominent female neuropsychologist, and to complete an online discussion task, to explore the social justice issue of gender in neuroscience. Inferred from this, the video has the functional purpose of providing core material for the activity augmented with discussion technology, the academic focus is on building conceptual knowledge of social justice through exposure to a viewpoint, and the pedagogical strategy is vicarious access to an expert, coupled with collaborative, divergent discussion. While the conceptual learning was not formally assessed, the teaching team noticed anecdotal evidence of "social justice awareness [forming] in students' reflections, comments, and assignments" (Motulsky et al., 2014, p. 19).

In a college health education case, students collated online video clips on material relevant to their weekly topics, with the flexibility to source and/or create the clips (Burke & Snyder, 2008). Further, the students were tasked to create a YouTube playlist of their clips to share, comment on, and discuss with their peers using YouTube's online platform. Extrapolated from this case, the functional teaching purpose involves the activity of sourcing and/or producing video clips, which is augmented with YouTube technology, the academic focus is likely declarative knowledge through the construction of knowledge artefacts, and the pedagogical strategy is student-generation or curating of video-rich artefacts for analysis and collaborative discussion. The study reports the approach as effective in that students were active in their learning, with the authors cautioning against using video passively. They recommend to "instead take advantage of its interactive nature in the delivery ... as well as in post-viewing and follow-up activities" (Burke & Snyder, 2008, p. 44).

In a graduate subject of "Producing, editing and publishing a video", biological and environmental science students worked in dyads to produce instructional videos (based on a literature review they conducted on a topic and a storyboard they created), and kept an individual learning journal (Pirhonen & Rasi, 2017). With the activity-related purpose of video production, along with the pedagogical strategy for students to create video content and to reflect on their own practice in the creation process, an academic focus emerges of practical/procedural knowledge to develop media competency within this video technology subject, while implicit is the declarative knowledge of the topic the student dyads chose to focus upon. Learning advancement was considered variable; those students who already knew their topic well from prior studies made less disciplinary learning gains, while those who had not previously produced video made greater gains in video production skills (Pirhonen & Rasi, 2017). Thus, a dual academic focus may have competed rather than blended in this otherwise ostensibly rich learning activity.

In another case, undergraduate mechanical engineering students used video twice in their subject (McCaslin & Young, 2015). They first recorded their fast-paced material science laboratory experiments using action

cameras for slow-motion post-experiment analysis. From this, the students developed summative videos of their experiment, to use as presentations to help them to practice and improve their technical communication skills. Similarly to the previous case example, the activity-related functional purpose is principally video production. Further, the pedagogical strategy to create video material for vicarious and repeat access to a phenomenon allowed the students to analysis material normally too fast for detailed visual examination. The academic focus involves conceptual knowledge to notice and analyse underlying concepts (or arguably declarative knowledge to draw inferences) and procedural/practical knowledge to both learn to observe and interpret and to develop practical skills in technical communication. The students reportedly increased their disciplinary understanding, their ability to communicate technical information, and their motivation to learn (McCaslin & Young, 2015).

The assortment of examples presented above illustrate how video can assume multiple, simultaneous types of roles in higher education teaching and learning, and highlights some challenges (e.g., negotiating amount of video versus other experiences, or how to determine successful deployment of video). Overall, it is challenging for university teachers to find a balance between designing the conditions for optimal learning from video as a teaching tool while also enabling students to develop the self-directed learning and higher-order thinking capabilities required of higher education. Academic learning is a complex, dynamic activity for university teachers to comprehend, and has become more complex with the potentially transformative affordances of digital technologies (Giannakos & Vlamos, 2013; Laurillard, 2012). Yet digital technologies are not the drivers of good teaching practices. Teachers can determine various roles for video to assume, despite the temptation to use video solely for convenient technological solutions. While challenging the assumption that technology is the driving force behind optimal online teaching and learning, Bayne et al. (2020) recognise that digital technologies such as video can bring both wanted and unwanted changes into the teaching space, pressing the need for human sensibilities to avoid being technology-led. Moreover, and aligned with postdigital viewpoints, “digital education is best understood as a set of social and material practices involving complex interactions of human and nonhuman entities” forming integral parts of online teaching practice (Bayne, et al., 2020, p. 16). Indeed, “technology is [only] one of a number of elements that are always interdependent within complex pedagogical activity” (Fawns, 2022, emphasis removed).

Educators who choose “to use video as part of their practice will need to make decisions” within their locus of control about their pedagogical approach (Fyfield et al., 2019, p. 4). Teaching requires skills beyond matching: “teachers must be willing to treat the process as essentially problematic, iterative, and always improvable” (Laurillard, 2012, p. 82). Evolving teaching practices with technology are yet to settle into shared understandings:

We cannot challenge the technology to serve the needs of education until we know what we want from it. We have to articulate what it means to teach well, what the principles of designing good teaching are, and how these will enable learners to learn. Until then we risk being technology-led. (Laurillard, 2012, p. 4)

The reviews, theory, and case examples drawn from across this paper illustrate that digital video forms a highly useful tool, an instrument to help teachers as human agents to achieve multiple, intertwined, and complex roles, including those categorised under functional purpose, academic focus, and pedagogical strategy.

Conclusion and recommendations

As indicated by the metaphorical start to the title of this paper, video is not dead yet (“not drowning”). In a society where the use of video continues to grow, it is anticipated that this audio visual medium will continue to have a place in higher education teaching as we move into new digital teaching contexts. However, this place is further cemented when considering the wide range of purposes that teachers mediate through video, as demonstrated by the broad array of video role types presented in the typology offered in this paper. While educational theorists have long called for an end to transmissive-styled teaching, and various video reviews cited indicate video can perpetuate such practice, the typology and case examples discussed demonstrate the role of video in university teaching practices as far more than unidimensional.

Video as a technological tool should not alone determine the learning experience without human intervention and decision-making. University teachers can intentionally decide what roles they employ

video to assume in their teaching practices as part of their social and material interactions that they have with their students within their teaching and learning contexts (metaphorically “waving”). It is intended that the typology—offered in three core types of roles including functional purpose, academic focus, and pedagogical strategy—reveals an array of roles for video. The typology can be used as a guide by university practitioners, for example, as a ready reckoner for video uses, and/or to stimulate considerations for extended roles for video within teaching practices beyond technological audio visual viewing affordances. Various roles within the typology surface a human focus beyond technological affordances, to illustrate what teachers can intentionally do with video for and with their students. The typology for video use in higher education is open for adaption into the future as new case examples are applied. For example, the typology is currently being tested after ethnographically following university teachers who used video extensively in undergraduate subjects (within a larger cultural-historical activity theory study), with publication forthcoming.

For online educators in higher education, this article offers four overlapping and somewhat cascading recommendations:

- While video is omnipresent in higher education, it is recommended that university teachers activate and optimise multiple roles for video as an online teaching tool, through the human activity of intentional teaching design to create optimal learning conditions.
- University teachers employing video are encouraged to lean in to the long-understood notion of students as active agents in the learning process despite the prevalence of video assuming a largely passive-receptive viewing role in higher education.
- Video as a teaching tool should be considered within its complexity of role opportunities, its multidimensionality; that is, beyond audio visual affordances of bringing vicarious experiences to students, it can and does assume multiple other roles.
- The typology offered in this article illustrates an array of roles for video, and university teachers are encouraged to determine multiple role types for each use of video in their teaching practices, including considering the functional purpose for video (e.g., providing information, comprising an activity), academic focus (i.e., knowledge type under focus), and pedagogical strategy (e.g., problem solving, critical analysis).

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Corresponding author: Meg Colasante, meg.colasante@deakin.edu.au

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